The Government have undertaken the execution of a scheme for improvement of livestock in the State on a systematic basis. A five-year scheme under which a large number of bulls of *Dhani* and *Sindhi* breeds are purchased and distributed among well-to-do *zamindars* in selected centres every year has also been sanctioned. Horse and mule breeding activities also have been started on a small scale, but a more comprehensive scheme is under consideration. Special interest has been taken in sheep-breeding, which is so important for the development of the wool industry in the State. Livestock shows are held at different places in the State every year, with a view to encouraging livestock improvement. More veterinary dispensaries are being opened every year. A laboratory has been established recently at Srinagar, where Goat Tissue vaccine is prepared for the treatment of animals.

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The Agriculture Department is doing useful work to improve agricultural conditions in the State. The activities of the Department which were at first confined to Kashmir Province only have been gradually extended to Jammu Province also. Agricultural and Horticultural experimental work and the demonstration of improved methods of cultivation of crops and fruit plants are important features of the Department's work. It also distributes improved seeds, grafted fruit plants, implements and manures, gives technical advice to orchardists and agriculturists and fights the San Jose Scale and other pests. Agricultural training is imparted to sons of *zamindars* at Government Farms. The Department has introduced high yielding varieties of wheat and corns including sugarcorns from the U. S. A., Canada and Russia, and several foreign vegetables and fruits.

The soils of Kashmir Valley are very fertile and irrigation is easy in areas removed from water. The improved seeds distributed by the Agriculture Department have found favour with the *zamindars*. Hand labour in Kashmir Province has been found to compete favourably with agricultural machinery. In Jammu Province, the use of new iron ploughs has been demonstrated and the *zamindars* have purchased such implements for their farms.

654 492 The saffron of Kashmir grown in one important locality in the valley, is very famous. The Department has recently made some successful experiments in growing this saffron in Kishtwar in Jammu Province.

The Department also sends peripatetic parties of gardeners to the villages to demonstrate to the *zamindars* the operations connected with orchard laying. Demonstrations are given and the people educated regarding the control of pests. An Act for compulsory spraying of fruit plants has been promulgated. Agriculture, fruit, and flower shows are held annually at several places in the State to arouse the interest of the people in improved methods of agriculture, horticulture and floriculture.

The Department maintains poultry farms in which improved breeds are raised. Eggs and chicks are supplied to *zamindars* from these farms. His Highness' Government are a member of the Imperial Council of Agricultural Research and the Council has provided funds for (1) the San Jose Scale and the Woolly Aphis Research Scheme, (2) the Rice Research Scheme and (3) the Vegetable Seed Production Scheme in the State. A fruit survey scheme has also been sanctioned by the Council.

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655 [47] 623 [651] The establishment of *panchayats*[1] in the villages of the State under the Panchayat Act has received a great fillip since 1937 with the creation of a separate Department of Rural Development. To start with the Government sanctioned a lump sum grant of Rs. 40,000 for execution of improvement works. The grant was raised to Rs. 1,00,000 later. Subsequently the grant of Rs. 40,000 provided for the *kuhls* water supply was transferred to this Department, raising the total to Rs. 1,40,000 in S. 1996-97. In S. 1999 the grant stood at Rs. 2,00,000. The *panchayats* do not merely decide petty cases. They are engaged in the work of rural reconstruction and are co-operating with the Government in the matter of execution of improvement schemes in rural areas. Besides providing free manual labour for construction of village roads and sinking of wells and similar other works, the *panchayats* have also made cash contributions for these public utility works. Villagers are also contributing towards the purchase of the community Radio sets, digging of wells,

1 [ie, village councils, usually composed of five members -- Analyst]

ment for supply of drinking water to the *kandi illaqa* of Jammu Province, and a special allotment is made in the budget for the purpose every year. Tube wells have been constructed at several places, and water supply schemes for a number of localities are under consideration. 657 312

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Reference has already been made to one of the chief industries in the State, viz., the Sericulture industry, which is a Government concern. The silk filature in Srinagar is the largest of its kind in the world. A special quality of raw silk has been produced in Kashmir, which can favourably compete with silk produced anywhere else. It is interesting to note that the rearing of cocoons for silk provides employment for thousands of homes in the villages, exclusive of the labour that finds employment in the factories themselves. Owing to the rise in the price of silk, sericulture has already made a good contribution to the revenue of the State. A scheme for a large expansion of the industry has been taken in hand. A five-year plan for the expansion of the factory at Jammu has already been sanctioned, and it is expected that at the end of five years, the labour employed in the sericulture operations in the factory premises and in cocoon rearing in the province as a whole will show an increase of 150 per cent. High class carpets are manufactured in Kashmir and exported to Europe and America. Owing to the war, however, this industry has suffered a set-back recently. The industry, as stated before, continues to receive a subsidy from the Government. 655 288

A Department of Industries was established in 1923 to develop and foster industries in the State. The chief among the older industries which have become established are a Match Factory, a Santonine Factory, a Tannery, a Pottery Factory and the Shri Karan Singh Woollen Mills. A Government Silk Weaving Factory has been established to produce high class silk fabrics of different kinds. It has recently been developed and expanded to four times its original size to give a further fillip to the silk weaving industry in the State. A Research and Commercial Sheep Breeding Farm with a research and commercial section has been established to develop the sheep breeding 647 655 288 232 654

232 and wool growing industry in the State. For purposes
654 of research work, the Government have granted subsidy to the Farm.

655 Forests which cover about one-eighth of the total area
313 of the State, and Forest industries provide a large field of employment for skilled and unskilled workers, besides yielding a large revenue to the Government. In recent years, the Forest Department has shown particularly good results. The net revenue of the Department for 1942-43 was Rs. 63.46 lakhs, which gives it precedence over other parts of India. The demand for timber grown in the State has increased considerably and owing to war conditions it has brought good prices. Cultivation of pyrethrum has made good progress. The Rosin and Turpentine Factory at Miransahib has done particularly well. The factory has led to the establishment of a number of minor private-owned industries and contributed to the development of Miransahib into what promises to be a new industrial town. The Half-wrought Factory at Baramulla received orders exceeding Rs. 10 lakhs for 1942-43.
284 The feasibility of establishing a newsprint paper industry in the State was investigated by Tata Sons Ltd. with whom the Government have entered into an agreement for a comprehensive investigation of industrial possibilities in the State. But owing to the impracticability of importing heavy machinery in the
742 present conditions, the proposition has to wait. A Drug Research Laboratory has been established under the expert guidance of Sir Ram Nath Chopra, its Director, and it is expected that within a few months it will be in a position to meet a part of the requirements of medical
322 institutions in the State. Another noteworthy industry is Kashmir Willows, which besides manufacturing cricket bats has taken in hand the production of other wooden articles of great utility.

471 The establishment of a sugar mill at Miransahib near Jammu, is in hand and the manufacturing operations are expected to start early. The Shri Karan Singh Woollen Mills and the Indianite Factory which are not State-owned, but in which the Government have a substantial interest, have been kept busy executing orders received from outside the State. Well established cottage industries producing woollen fabrics, like *pattoos*, tweeds, blankets, shawls, *namdas*, *gabbas*, papier-mache and

000 an introductory account of the general industrial expansion of the decade and taking up each item in succession.

654 473 With a view to devote increasing attention to the development of the forest, mineral and industrial resources of the State a new portfolio of Commerce and Industries was provided in the Constitution which came into force during the Samvat year 1979 (1922 A. D.) resulting in the creation of a new Department of Industries under an expert. The department after doing preliminary survey work busied itself with the problem of examining possibilities for the establishment of new industries but for want of a definite industrial policy much progress could not be made especially when the period was one of all round trade slump and falling prices and when necessary capital for outlay in big ventures was not readily forthcoming. Still with all these handicaps the industrial utility of the various minor forest products was examined and experimented upon as also the economic value of the various minerals was established by tests in the Government Industrial Laboratory and by certain manufacturing firms of England. During the short period of its existence the department has succeeded in spreading an industrial atmosphere in the State and creating a desire in the people to take to industrial pursuits. Creation of industrial reserve, organization and holding of the State Exhibitions, provision for registration of Joint Stock Companies, Patents and Designs, formation of a Civil Supplies Department have all contributed materially towards industrial advancement. Below is recorded a list of some of the important industries established during the decade under review and in these operations are employed on a fairly large scale:—

1. Match Factory.
2. Ice "
3. Tanneries.
4. Sawmills Factory.
5. Fruit Preserving Works.
6. Soap Manufactures.
7. Tent Factory.
8. Oil Factories.
9. Furniture Factories.
10. Willow Works.
11. Silk Weaving Factories.
12. Carpet Factories.

The above shows the fresh industrial ventures of the decade but Kashmir handicrafts and cottage industries too ventured to mention have side by side made a satisfactory all round progress which is evidenced by the birth of new manufacturing lines of carpets, pashmina, lace, silks, shawls, embroideries, papier mache wares, silver-ware and wood-carving, etc. Commercial value of the following new materials have further been investigated and there is an early possibility of these products being exploited for commercial purposes through the establishment of new industries in the State:—

1. Jute Manufactures.
2. Silk "
3. Wine "
4. Rose Distillation.

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3. Saffron Oil.

4. Extraction of Jasmin, Narcissus and Lilac essences.

7. Shimla Oil (Sweet).

8. Cassia preparation.

9. Paints and Varnishes.

10. Honey Purification.

11. Black board chalk Manufacture.

12. Starch Manufacture.

The famous Silk Industry of the State continued its function although its [288]
known experienced a considerable fall in the latter half of the decade due to
the extraordinary fall in the price of the silk.

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Cottage Industries.—A peripatetic demonstration party employed by Government has done useful work by introducing improved fly-shuttle looms and teaching new patterns and designs to the village weavers. The solicitude of Government for the improvement and welfare of the cottage workers is sufficiently exhibited by the handsome grant of Rs. 75,000 sanctioned for granting small loans to the workers. Further proposals for State aid to industries and establishment of an industrial and commercial bank are also under consideration of the Government.

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Birthday Exhibition.—The holding of an annual exhibition at Srinagar of the Industrial and Agricultural products of the State on the auspicious occasion of His Highness' birthday has served to give a wide publicity to the indigenous arts and manufactures through the large mass of visitors who annually flock to the Happy Valley to escape the rigorous heat of the plains as also to enjoy the beauties of nature in Kashmir.

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The department has prepared a Statistical Atlas for the State and is engaged in bringing out other useful publications such as the Statistical Abstract, Development Map and a Commercial Directory. A clear proof of the spread of industrial atmosphere will be found in the formation of the following five Joint Stock Companies during the decade while formerly the business on Joint Stock System was much less known than practised in the State :—

		Share Capital. Rs.
1.	The Dogra Commercial and Industrial Company Limited, Jammu	— [illegible]
2.	Jammu and Kashmir Commercial Syndicate Limited	— [illegible]
3.	The Lakshmi Trading Company Limited, Srinagar	— [illegible]
4.	Kashmir Textiles Limited, Srinagar	— [illegible]
5.	Apna Limited, Srinagar	— [illegible]

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bond is growing exceedingly popular since on this system the merchants of the Punjab and the State can compete on entirely equal footing and articles imported in bond are sold within the State almost at the same price for which they sell in the Punjab as under this system the State traders have to pay the customs duty at the British Indian Port and no additional duty is levied at the State Frontiers on these imports as the State, under Treaty terms, automatically receives the credit of duties on all such imports made into the State in bond. As regards articles imported from any place in British India into the State, a State customs duty has to be paid which increases the price of the articles for the consumers in the State. The idea of the growth of bonded imports during the decade can be gathered from a survey of the following comparative figures which show an increase of 150 per cent. in the decade.

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	Imports in Bond	
	1922.	1932.
Jammu Province ..	2,179,136 Rounds.	4,705,784 Rounds.
Kashmir " ..	2,841,280 "	6,118,227 "
Total ..	5,020,416 Rounds.	11,824,111 Rounds.

As regards Central Asian Trade the value of which is given above for the purposes of comparison it will be observed that the trade has experienced considerable fall both on the export as well as the import side since the year 1921. The causes of this depression are to be found in the propaganda of the Soviet Government to increase their own trade in Central Asia by ousting the British Indian imports through a process of systematic underselling of their goods and consequently depriving the British Indian goods from competing on favourable terms. The Inspector General of Customs and Excise thinks that unless the propaganda against imports from British India is counteracted there is hardly any chance for the import trade to show any appreciable improvement.

34. Mineral Wealth.—The State possesses extensive Mineral Wealth the scientific development of which will besides meeting the pressing need of augmenting the financial resources of the State materially solve the problem of economic depression and unemployment. The Mineral Survey Department has succeeded in locating a large number of minerals a list of which is given below :—

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Fuels—(1) Coal, (2) Lignite, (3) Possibility of Petroleum.

Metalliferous Minerals—(1) Bauxite, (2) Iron ore, (3) Copper ores, (4) Lead (Silver ores), (5) Zinc, (6) Nickel ore, (7) Manganese, (8) Gold, (9) Arsenic, (10) Chromite.

Non-Metalliferous Minerals—(1) Ochre, (2) Gypsum, (3) Graphite, (4) Kaolin, (5) Bentonite, (6) Fullers earth, (7) Marble, (8) Slate, (9) Steatite, (10) Soapstone, (11) Baryte.

Precious and Semi-precious Stones.—(1) Corundum (Sapphire and ruby), (2) Beryl and Aquamarine, (3) Tourmaline.

Besides these are other minerals which are suitable as chemical fertilizers (Gypsum and Sulphates), for glass manufacture, for making refractories and for other chemical industries.

It will be interesting to note that the above Mineral Wealth has been located in 1/17th part of His Highness' Territories which has only been surveyed so far and we have to for the imagination of the reader to fill up the picture when the entire territories have been surveyed.

000 ed so far and we leave it for the imagination of reader to fill up the picture when the entire territories have been surveyed.

316 654 Although a good deal of survey work has been done but actual working has not so far been seriously commenced save in the case of Corrundum Sapphires of which about 50,000 Tolas have been dug out from the Padar Mines and the Aquamarines which have been won from the Skardu Mines. Prospecting licenses for Ochre, Gypsum, Talc and Lignite have been issued to private individuals or firms and applications for grant of prospecting licenses for some other minerals are under consideration. This no doubt shows that some beginning in the exploitation of Mineral Wealth has been made though on a small scale and day by day increasing number of people are getting interested in the business bringing within reach of the Government fresh sources of income. The working of the principal minerals on a commercial scale on which the State can build its hopes especially Bauxite, Iron, Copper, Lignite and Coal is ruled out problem unless communication to the mines situated over high mountains are improved to facilitate their carriage in raw condition to commercial centres to compete in the market or to facilitate the carriage of heavy machinery and engineering plants to the mines for converting the raw material into finished commercial products.

433 For the conversion of these inert resources into actual wealth which will flow into and fill up the coffers of the State in ever-increasing bulk bringing all-round prosperity in the country it is necessary to impart requisite training to the people in industrial development.

None of the minerals have so far been developed and worked on scientific basis for lack of proper communications, public enthusiasm or for other reasons. To derive full advantage of these resources, it is hoped, the State would formulate vigorous industrial policy, grant adequate protection, concessions and other guarantees so that big capitalists might feel encouraged to invest their wealth in large scale ventures. Even for small undertakings working whereof can be immediately taken in hand the following facilities should whenever necessary, be extended to the lessees so that the traditional shyness of the local residents might be won over and sufficient nerve, confidence and spirit of adventure be developed in our youngmen who may feel an instinct for industrial careers in preference to clerical jobs. Some of the more important requisites for industrial development as stated by the Industrial Department are :—

1. Transport facilities,
2. State aid,
3. Protective tariffs during the stage of infancy,
4. Preservation of indigenous manufactures,
5. An efficient and wide-spread Banking System,
6. Organization of Markets,
7. Scientific researches, and above all
8. The quality of Human Factor.

The present low standard of output and of comfort, the contempt for manual labour, the low vitality, the absence of ambition, the inordinate tendency to borrow for unproductive expenditure are individually or collectively responsible for keeping a large proportion of the State population low in the scale of civilization and progress. A weak and ignorant population, however, richly endowed with natural resources cannot be made to appreciate the economic possibilities around them and to seize the opportunity for bettering themselves.

245 654 *Silviculture.*—Great progress was made during this decade in silviculture. The establishment of a specialist Working Plan Circle enabled all the valuable commercial forests to be brought under modern methods of management, thus enabling the forests to be fully utilised without impairing their future productivity. Silvicultural research was undertaken for the first time and a special Research Division was formed.

[313] [314] *Commercial Development.*—Considerable progress has been shown in developing the commercial side of the department's activities. The out-turn of timber rose from 11 millions c.ft. to nearly 29 millions. The markets for minor products were developed and extended. The production of crude resin rose from about 4,000 maunds to 55,000 maunds greatly adding to the prosperity of the people in parts of Jammu Province where resin tapping has now become a well established village industry. Kashmir Artemisia has been brought under commercial working and now contributes considerably to the world's supply of Santonin.

General.—The expansion of the Forest Department's activities have very largely benefitted the people of the State. Not only has the larger income produced by the department enabled the Government to spend more money on social services such as education and medicine, but the increasing out-turn of produce has provided a great deal of work for the inhabitants many of whom now rely on forest works to enable them to pay their land revenues.

241 242 **26. Agriculture.**—A glance at Imperial Table X (Occupation), will show that by far the major portion of the inhabitants of the State depend on agriculture for their livelihood. The prosperity of trade and transport is also indissolubly linked with the bright prospects of agriculture for if the purchasing power of the masses goes low on any account a season of depression sets in the trading section of the community. The activities of the Agriculture Department in promoting the interests of farmers by introduction of better varieties of seed, more scientific instruments, better manures and last but not least by awakening a new interest in agriculture by overcoming the apathy of ages are particularly relevant to the Census Report. Any invention or discovery which can double the yield of crops in this country is bound to multiply to the same extent the mouths that feed on it. The activities of the Agriculture Department of the State are, however, unfortunately concentrated in the Kashmir valley only, and the province of Jammu has not derived any material advantage from its existence so far. The extension of the department's activities to that province on a larger scale is apparently necessary.

In the Kashmir valley the Agriculture Department maintains two experimental farms where several varieties of agriculture and vegetable seeds imported from India and foreign countries like America, England, Russia, Italy are tried and recommended for adoption to cultivators after the experiments have met with success on the Government farms. In some cases acclimatised seeds have multiplied the yield by 50 per cent. About 169 varieties of foreign vegetables are also grown on the farm. The seed is distributed twice a year in the valley and demands from other places are met by post.

241 177 *Implements.*—Several implements such as Meston ploughs, Horse Hoe, Bar Harrow, Chaff Cutter, Maize Huller and Sheller, Automatic Seed Drill have been introduced and though a few only of the zamindars who are enterprising enough have come forward to purchase them and try their utility on their farms an innovation has been started which might prove of considerable value in the future.

543 *Shows.*—Agricultural shows used to be held on the occasions of seed distribution and have now come to form a part of the Industrial Exhibition held annually in Srinagar. The Agriculture Department occupies a separate section where several varieties of different agricultural and horticultural products are exhibited besides the implements and provide a source of valuable information and instruction to the people. In 1929 no agricultural show was held at Jammu

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on the occasion of the visit of His Royal Highness the Prince of Wales. Besides imparting education by "shows" Departmental bulletins were also published and circulated. The bulletins dealt with the sowing of Maize, Groundnuts, Soybeans and Beans and the removal of certain crop diseases. 543

Manures.—The Agriculture Department has tried several manures on the farm to test their utility on different crops. 242

27. **Horticulture.**—The department maintains fruit plant nurseries including ornamental plants. Fruit canning is receiving attention though the industry is still in its incipient stage. A firm known as Kashmir Fruit Preserve Works has been authorised to manufacture fruit beverages, apple-brandy, grape wine and ciders etc. A new nursery has been opened at Achhabal and experiments regarding stock and scion compatibility have been started in all the nurseries and scion wood from Australia has been introduced. The department has been distributing about a lac of young plants annually to the zamindars without any charge. 654

The only depressing feature of the decade has been the appearance of San Jose Scale disease which has inflicted a very heavy damage on the fruit industry of Kashmir. Remedial and control measures have been adopted to get rid of this pest. [136]

28. **Veterinary.**—For maintenance of agricultural prosperity the maintenance of live-stock in health is essential. Previous to 1923 the system of inoculation did not exist and consequently the mortality among cattle was heavy. There are now 8 Veterinary Hospitals in the State and the outbreaks of rinderpest, Haemorrhagic Septicaemia and other epidemic diseases were successfully dealt with on modern scientific lines and many animal lives saved. Facilities have been provided by the department for brining to its notice the outbreak of epidemics and even individual patients. For improvement of cattle several schemes have been under contemplation and awaiting to be put into effect as funds permit. The scrub bull pest is being removed by castration of the scrub bulls. The enclosed table shows the variation in live-stock during the last decade. 232

The important constituents of cultivation are :—

162 Non-cultivating proprietors, cultivating owners, tenant cultivators and agricultural labourers.

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Class.	Total strength of earners.	Strength in 1921 of actual workers.	Percentage of total earners under cultivation.
Non-cultivating Proprietors	29,099	28,600	5
Cultivating Owners	324,681	322,040	60
Tenant Cultivators	189,557		34
Agricultural Labourers	11,548	2,502	2

The figures of earners under non-cultivating proprietors compare favourably with those of 1921 and if we add the working dependents of this group the figures will be in excess of those in 1921 by 14,571 *i. e.*, nearly 50 per cent. increase would be exhibited. The non-cultivating proprietors comprise only 5 per cent. of the total earners under cultivation which points to the fact that the holdings of land are generally small and cannot support a big lethargic class. The cultivating owners are the most numerous members of the profession which augurs well for the politico-economic stability of the State and its people as peasant proprietorship is a solid foundation of social structure. A peasant-proprietor evinces a keen interest in his work and is alive to the need of increasing the productivity of land without exhausting the soil, unlike the tenant-cultivator whose main interest is to get maximum yield from the land with minimum outlay or the non-cultivating proprietor who merely acts like a suction pump drawing the highest rent possible. The tenant-cultivators form 34 per cent. of the total earners of this class while agricultural labourers are only 2 per cent. The preponderance of tenant-cultivators is prejudicial to agricultural improvement and it is fortunate that their proportion is not over-whelming. The lowest figures for agricultural labour are probably due to errors of enumeration which have led to an inflation of the figures under general labourers.

652 654 **193 Government Aid to Agriculture.**—As stated in extenso in Chapter I of the Report agriculture is the subject of special concern with His Highness' Government. Irrigation has been extended on a large scale, co-operative societies have been started to finance agriculture, usury has been crushed, Agricultural Department is doing its utmost to introduce new crops and increase the quality and outturn of existing ones though its activities are practically confined to Kashmir Province only, remissions and suspensions of land revenue are frequent, Taccavi advances are made to agriculturists in distress, Veterinary hospitals are provided and some other special concessions have been made. The task so far accomplished is worthy of record though much remains to be done still. The chief drawbacks of agriculture are difficulties of communications and lack of marketting facilities together with the backwardness of people who have no scientific knowledge of the subject. Agricultural education is the first and foremost necessity for a country which has its being bound up with agriculture. The marvellous change that this sort of education can bring about will be clear from the statement of Mr. M. H. Jenkins, in his Report to the Royal Commission on Technical Instruction, wherein he says "the results of agricultural education in Denmark have been something extraordinary. Danish butter is now the best in the world; in 1880 it was described by the British Vice-Consul at Copenhagen as 'miserably bad', the progress since is directly traceable to agricultural education". As circumstances are, the produce of all 241 principal crops per acre is unavoidably low compared to that of other countries and in spite of more than 70 per cent. of the population relying on this source of livelihood the State is not self-sufficing in matter of grain produce and has to import food staples in large quantities from outside.

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other hill station of the outer Himalayas, but in February it is apparently damper, and in the remaining months of the winter and spring of about the same character. The humidity is highest in August, when it amounts to about 80 per cent. of saturation. In March the skies are as cloudy as during the rains. In the spring months, from March to May, it rains on an average about one day in three, most frequently in April. The rainfall on each rainy day averaging about one-fourteenth of an inch. Rain is less frequent in June, but increases again in July and August, when about half the days are more or less rainy and the falls heavier than in the spring, averaging three-quarters of an inch on each day of rain. The number of rainy days has varied from 74 only in the dry year 1880, to 123 in 1885, and the total quantity from 39·1 inches in the former to 71·8 inches in the latter year.

'October and November are the clearest months, but even these, and every month up to May, are more cloudy than at Simla or on the plains. On the other hand, in July and August there is less cloud than at Simla or other more easterly stations, as might be expected from the smaller frequency of rain.

'Leh.—Situated 4° further north than Quetta, and 6,000 feet higher, this station in the leading characteristics of its climate represents that of Western Tibet. Its observatory, 11,500 feet above the sea, is the most elevated in Asia, and has now furnished a register for twelve years.

'Leh, the chief town of the province of Ladákh, is situated in the upper valley of the Indus, which is here from six to eight miles across for a distance of forty or fifty miles, and shut in on both sides by portions of the Tibetan plateau, averaging 16,000 feet above sea-level, and bearing some of the loftiest ranges of the Himalayas. The flats and terraces along the banks of the river are all cultivated, and dotted with numerous villages, but for a mile on each side, between the fields and the foot of the hills, is a waste of sand, gravel, and large boulders, similar to that which fringes the much lower hill ranges of Baluchistan, but on a larger scale. The town of Leh nestles under the hills north of the valley, at a distance of some four miles from the river, up a long gentle, gravelly slope.

'The atmosphere of the valley is remarkably clear and transparent, and the heat of the sun very great. There is generally a difference of more than 60° between the reading of the exposed sun thermometer in vacuo and the air temperature in the shade, and this difference has occasionally exceeded 90°. It has been mentioned on a former page that Dr. Cayley succeeded in making water boil by simply exposing it to the sun in a small bottle blackened on the outside, and shielded from the air by inserting it in a larger phial of transparent glass. Owing to the diminished pressure of the atmosphere at the elevation of Leh, this would, however, take place

[Notes by Eliot. See category 116, p. 27 for identification of Eliot -- Analyst]